

Biological Assessment of Large Rivers in the U.S. Environmental Protection Agency Region 5: An Inter-Agency Collaboration

Brent Johnson

Ecologist

U.S. EPA Office of Research and Development (ORD)/ National Exposure Research Laboratory (NERL)/Ecological Exposure Research Division (EERD), Cincinnati, OH

(513) 569-7335

johnson.brent@epa.gov

Authors: Brent Johnson¹, Erich Emery², Jeff Thomas², Jim Lazorchak¹, Joe Flotemersch¹, Karen Blocksom¹, Chris Yoder³

¹U.S. EPA ORD/NERL/EERD

²Ohio River Valley Water Sanitation Commission (ORSANCO)

³Midwest Biodiversity Institute (MBI)

Keywords: bioassessment, large rivers, fish, macroinvertebrate, EMAP

Biological assessment of our nation's large rivers has lagged behind that of smaller streams because of a lack of appropriate methods, necessary training, and disturbance indicators. The need for assessment of large rivers has risen along with an increasing awareness of pollutant runoff, cumulative stressor effects, and observed degradation in coastal zones. The NERL in Cincinnati and the ORSANCO are addressing this issue through a collaborative effort to develop standardized assessment methods and appropriate biological indicators for large rivers of U.S. Environmental Protection Agency (U.S. EPA) Region 5. The Environmental Monitoring and Assessment Program (EMAP) was developed to provide monitoring designs and indicators that yield unbiased estimates of ecological conditions, but it had not been previously applied to large river resources. Through Regional-EMAP (R-EMAP), the ORSANCO and MBI are using standardized methods to sample fish assemblages at 30 randomly selected sites on each of up to 11 large river tributaries to the Ohio and Mississippi Rivers from 2004–2006. The Regional Methods Program (designated specifically for methodological needs of states, regions, and tribes) is funding the NERL to sample a subset of the R-EMAP target rivers to provide multi-assemblage assessments. The NERL is using a standardized Large River Bioassessment Protocol (LR-BP) to collect aquatic invertebrates, phytoplankton, and water chemistry at 25 sites on each of six target rivers in 2004–2005. This collaborative effort will provide the necessary assessment tools for states and tribes to begin developing biocriteria for these vital large river resources.

Although this work was reviewed by the U.S. EPA and approved for publication, it may not necessarily reflect official Agency policy.